TECHNOLOGY DEPT.

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JUL 15 1932
DETROIT

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

Vol. 13. No. 177 | Entered as second-class matter Aug. 27, 1925. Post Office, N. Y., N. Y., Under Act of March 3, 1879 | NEW YORK, THURSDAY, JULY 14 | 5 Cents. $12 Per Year.

Association Show Managers Tell Experiences in Offering Cars as Spur to Attendance

No Official Recommendations Made After Round Table Conference; Group Tours Exposition Grounds

Chicago, July 13.—Experiences of trade associations in cutting admission prices and offering cars in contests to stimulate attendance at local shows were told at the annual meeting of the International Association of Automobile Show and Association Managers, which wound up its two-day session here Tuesday at the Blackstone Hotel.

No official recommendations were made on either score. The conference being largely in the nature of a round table discussion of association and show problems. The one item of official business was the passing of a resolution of sympathy at the death of Samuel A. Miles, general manager of the national automobile shows. Sentiment in opposition to plain "garage lineups" of cars in favor of making the shows more animated, interesting and generally alluring found advocacy from a number of the members. In the absence of President Robert E. Lee, who is ill, Vice-President Herbert Buckman conducted the meetings with the assistance of Leon Banigan, secretary and treasurer.

Those in attendance included Alfred Reeves, general manager of the National Automobile Chamber of Commerce; C. A. Vane, general manager of the National Automobile Dealers' Association; Thomas J. Hay, president and general manager of the National Used Car Market Report; Lafayette Markle, president of the Chicago Automobile Trade Association; Claude Kugh, general manager of the Pennsylvania State Association; C. W. Coons, general manager of the Illinois State Association. General managers: E. Levesque, Montreal, Canada; W. D. Edenburn and H. H. Shuart, Detroit; William Berrian, Philadelphia; Richard Murphy Washington; Burt Robert, Los Angeles; Harry T. Gard-

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DODGE ADDS 78 NEW DEALERS IN MONTH OF JUNE

Detroit, July 13.—Dodge Brothers Corporation, division of Chrysler Motors, today announced that seventy-eight new dealers were added to the distributing organization during June, 1932. Ten of the number added during the month were direct dealers. These figures bring the total of new dealers added since January 1 to 438 and new direct dealers to forty.

The new direct dealers added during June were: J. Richards & Son, Joliet, Ill.; Pietro Di Novo, Steubenville, Ohio; McElroy Sales Corporation, Petersburg, Va.; Vincent-Kelly, Inc., Fargo, N. D.; Hoebler-Zoglemann Co., South Hills, Pittsburgh, Pa.; Watt & Guiou, Fort Fairfield, Me.; Central Motors, Inc., Mount Lebanon, Pa.; Greensburg Motor Co., Greensburg, Pa.; Shapiro Motors, North Adams, Mass.; Shapiro Motors, Pittsfield, Mass.

The names of the new dealers grouped according to regions follows:

Atlanta—Black Motor Co., Cumberland, Ky.; Black Motor Co.,

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Ford's Production Spurt May Place It in 1932 Lead

New York, July 13.—Passenger cars bearing the Ford name this year will regain the leadership in production and sales in the United States after having relinquished the honor last year to Chevrolet, the low-priced General Motors unit, according to all present indications.

Although Chevrolet's production for the first six months exceeded that of Ford, the latter went into the lead in May and June, and probably will continue to hold this advantage for some months. Chevrolet's output for the first six months approximated 255,822 cars and trucks, as against Ford's estimated total of 217,140, giving the G. M. unit a lead of 38,682.

Chevrolet's lead in the first four months of the year, during which period Ford was preparing to introduce its new models, was 114,822, Ford's output in May and June topping Chevrolet's by slightly more than 85,000 units.

By the end of July, Ford probably will have taken the lead for 1932. Ford Motor Company's production in June was 95,500 and in the current month will probably taper off by 10,000. Chevrolet in May turned out around 37,500 cars and trucks and its July operations thus far indicate a decline to 30,000 or less. On this basis, it is estimated that Ford will gain 50,000 to 55,000 on its chief rival, thus wiping out Chevrolet's advantage for the first six months, with something to spare.

Chevrolet last year turned out 784,033 motor vehicles, as against approximately 771,212 for Ford. This year probably will see a Chevrolet output of not more than 400,000, while Ford should exceed that total by a substantial margin.

It is too early to determine whether General Motors this year will be able to retain its place as the largest manufacturer of motor vehicles in this country.

It held the lead last year by a wide margin, after having been topped in 1930 and 1929 by Ford. Ford's advantage in 1929 was very slight, but it widened very materially in 1930; then Ford's output totaled 1,500,000, as against 1,174,115 from General Motors.

On the basis of the results for the year thus far and the outlook for the rest of the year, there should not be a great difference between the

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Mid-Week Finds Detroit Plant Activity Spotty; Trend Is Down

Ford Plants Lead Output; Hudson-Essex Also Busy; Engineering Departments Engaged in Experimental Work

Detroit, July 13.—While the automobile industry in this territory is going into its traditionally dull period, there are a number of points of intensive activity here as the week reaches its midway point. The Ford plant is humming with activity, though no figures on exact daily production are available. Last week and the week before, it is understood that the Ford factories were turning out 5,000 units a day with consistent regularity. Whether this level is being maintained or not has not been announced, but the output cannot be much below the maximum indicated.

Chevrolet had a very satisfactory June sales total, actual retail sales being some 10,000 units more than the month's production by the company.

The Plymouth plant is very active still. The Hudson plant is fairly humming with activity in preparation for the impending announcement of its new car, which will bring this company into the whirlpool of the lowest price class, to compete with Ford, Chevrolet, Plymouth, Willys-Overland, etc.

While generally manufacturing activity is not great, the engineering and experimental division of practically all the companies here are going through a period of the most intensive effort. Preparations are well advanced all along the line for the new models, which will not see the light of day until later in the year. Rumors of remarkable innovations in the lines of various companies are many, but so far Hudson is the only one to indicate positively a real departure from previous policies.

NASH GEARS OUTPUT TO ACTUAL ORDERS FROM DEALER BODY

Kenosha, Wis., July 13.—Nash Motors is operating on a nominal five day a week basis, with orders ahead to insure considerable work even during this dull seasonal period. The plants closed down on July 2, with the announcement that they would stay closed until the eleventh of the month. Orders received, however, made it necessary to reopen on the seventh. Production is geared absolutely to orders and the plants operate two, three, four or five days a week as demand from Nash dealers dictates.

Salary reductions were put in effect the middle of May and other operating expenses were reduced to a minimum. As a result of this policy, it is claimed, the Nash company can break even on a sale of about 1,000 vehicle units a month. This company has an income on investments amounting to about $250,000 a quarter, which, with operating expenses reduced to a minimum puts it in a position to break even on a very low production volume.

BOTTOM REACHED IN CHICAGO STEEL MARKET IS BELIEF

Chicago, July 13.—While some Chicago steel interests express the opinion that he local mills have seen the bottom, none seems to have any definite facts to substantiate their opinions and in any way indicate that an upturn is likely in the very near future. District operations at present average around 15 per cent.

Rail mills are more active than they have been for some time, partly as a result of the Pennsylvania's release. However, it will be a matter of only about two weeks before this backlog is used up. Tin plate mills as a whole have been doing comparatively better than other divisions in this district. Sheet mills operations are dull.

Inland Steel Corporation appears to be doing somewhat better than the rest of the local makers, with close to one-fifth of its open hearth

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CADILLAC MERIT MEN VISIT PLANT, ELECT OFFICERS FOR YEAR

Detroit, July 13.—Cadillac merit men, here for a three-day convention, have elected the following officers for the ensuing year: R. B. Sloan, New York, president; E. D. Boehm, New York, first vice-president; F. J. Balmer, Brooklyn, second vice-president; W. H. Couch, Stamford, Conn., secretary, and M. W. Hallman, Rochester, N. Y., treasurer.

There are 125 in attendance at the convention, all Cadillac-La Salle salesmen brought here by the factory because of their having either equaled or exceeded their retail sales quotas in the year just ended.

T. J. HAY EXPLAINS USED CAR MARKET REPORT LISTINGS

Chicago, July 13.—The extent to which used car depreciation has taken place in the past three months is revealed in an analysis by the National Used Car Market Report, Inc., of comparative figures between the seventy-second edition of the Blue Book and Red Book, just off the press, and the seventy-first edition, which came out in April.

Various makes of cars show reductions for the third quarter over the second ranging from 8.95 per cent. to 19.4 per cent., while price declines on individual models vary from a low of 2.5 per cent. to a high of 40 per cent.

The comparisons were arrived at, states Thomas J. Hay, president of the National Used Car Market Report, by listing all of the makes and models manufactured in the United States within the past five years and still active in the market. In this category there are 36 different makes and 3,532 models from which the used car buyer may choose and upon which the new or used car dealer must be prepared to bid.

Declaring that cold, hard facts and figures should govern in appraising used cars, Mr. Hay warns dealers especially against placing a "sentimental value" upon automobiles they are considering in trade.

"When mileage and styles are

(Continued on Page 2)

PHILLIPS OF DOLE VALVE ELECTED TO N. I. A. A. POST

Chicago, July 13.—At a recent meeting, Stuart G. Phillips, advertising manager of the Dole Valve Company, Chicago, was nominated and unanimously elected secretary-treasurer of the National Industrial Advertisers Association (N. I. A. A.).

Mr. Phillips has been active in the Engineering Advertisers' Association, the Chicago Industrial Group, for some years."

Rockne Deliveries Show Upturn at End of June

Detroit, July 13.—A gain of 18.5 per cent. in retail deliveries of Rocknes by dealers for June over May has been reported today. This figure represents the gain in actual retail sales as reported to the factory by dealers every ten days and shows June to be the heaviest selling month to date.

In this connection it is interesting to note that deliveries in the last June period showed a substantial gain over the previous ten day periods in the month. This was in spite of the fact that the June 10 to June 20 period was a heavy one due to the great public demand for cars before the Federal excise tax went into effect.

CRUDE OIL OUTPUT UP 47,750 BARRELS IN WEEK OF JULY 9

New York, July 13.—Daily average crude oil production in the United States increased 47,750 barrels a day in the week ended July 9, according to the weekly report of the American Petroleum Institute, issued last night. The daily average for the week was 2,152,550 barrels, against 2,104,800 barrels a day in the previous week, an average of 2,152,750 barrels for the last four weeks, and 2,554,650 barrels a day in the corresponding week of 1931.

The week saw another small drop in gasoline stocks, from 62,141,000 barrels on July 2 to 62,082,000 barrels on July 9.

OREGON RULES ON FINANCE COMPANY INSURANCE PLANS

Salem, Ore., July 13.—Automobile finance companies licensed under the state motor vehicle finance act (chapter 377, Oregon laws, 1931) are not authorized to transact an insurance business, but must comply with the provisions of the Oregon insurance code as to the licensing of insurance companies and agents in order so to do, Attorney Gen. I. H. Van Winkle has just ruled in an opinion to the state insurance commissioner, A. H. Averill.

Mr. Averill had informed the attorney general that cases before the Insurance Department showed that certain finance companies were collecting and retaining insurance premiums from car purchasers and no policies were being issued. The companies contended they had this authority under the motor vehicle finance act, so Mr. Averill requested a ruling.

WESTERN AUTO STORES USE MORE ADVERTISING

Nashville, Tenn., July 13.—H. J. Harrah, manager of the Western Auto Stores branch in Nashville, says his company believes that radically reduced prices, relieving car owners of much of the burden of the new Federal taxes, will increase the sales volume, with a marked effect for the better on the hundreds of factories supplying merchandise and the interests supplying raw material.

Continuing its aggressive advertising policy, the company is using more space in newspapers than in its history, and is mailing a copy of its well-known "Auto Owners' Supply Book" to practically every automobile owner in Nashville and vicinity, Mr. Harrah said.

GARAGE MEN'S CREDIT GROUP, FORMED IN N. J.

Paterson, N. J., July 13.—The Garage Men's Credit Association of Passaic County, with headquarters at 136 Washington St., filed articles of incorporation in County Clerk Lloyd B. Marsh's office, naming the following as its trustees: Sidney Adlman, George Haegler, R. D. Messineo, Frank Seymour and David L. Hubert. Correction of trade abuses, promotion of good will and furnishing of credit information were cited in the certificates of incorporation as the association's objects.

HOUSE VOTES DISTRICT ACCIDENT MEASURE

Washington, July 13.—The House of Representatives of July 11 passed the bill (H. R. 7894) to provide for the financial responsibility of owners and operators of motor vehicles for damages caused by motor vehicles on the streets and highways of the District of Columbia. The corresponding Senate bill (S. 3053) was reported favorably to the Senate May 10 by the District of Columbia Committee and is now on the Senate calendar.

FORD DEALERS MEET

Little Rock, Ark., July 13.—A meeting of Ford dealers in this territory was held at the Albert Pike Hotel, with B. W. Slagle, manager of the Ford Motor Company branch at Memphis, in charge. Mr. Slagle discussed the possibilities of a new national sales plan and complimented the Little Rock dealers, saying that they had sold a high per cent. of all the cars sold in Little Rock in the last few months.

EMPLOYMENT GAIN

Cleveland, July 13.—The State-City Employment Bureau here reports an increase of 10 per cent. in the number of persons obtaining employment through the bureau in June. Most of the increases, says Commissioner B. C. Seiple, was due to larger demand for casual workers. The fact remains, however, that the June placement record was the highest for any month since last September.

F. C. BESTOR NAMED

Los Angeles, July 13.—Frank C. Bestor has been named vice-president and general manager of Maddux, Inc., Lincoln dealer for Hollywood, Beverly Hills, Los Angeles and Santa Monica.

PYRENE STAGES TESTS OF FIRE PREVENTION DEVICES AT NEWARK

Newark, N. J., July 13.—The Pyrene Manufacturing Company on July 14 will stage a series of tests of fire fighting apparatus. The demonstration will take place at the company's test field, 109 Meeker Ave., in this city. The tests have been planned so that the complete demonstration will cover the general field of fire fighting.

FINANCIAL NEWS

YALE & TOWNE

Boston, July 13.—The June quarter report of Yale & Towne Manufacturing Company will show another deficit. March quarter showed net loss of $158,937 against net income of $7,947 in the initial 1931 quarter. The June quarter last year showed net loss of $112,861 after depreciation and charges.

ERIE MALLEABLE

Erie, Pa., July 13.—S. Watts Bowker of New York and A. W. Mitchell of Erie have been appointed receivers of the Erie Malleable Iron Company by the District Court, Pittsburgh. The company is one of the largest industries in northwestern Pennsylvania and specializes in production of equipment and material for railroads and the automobile industry.

RICHFIELD OIL

Los Angeles, July 13.—In a report to the court William C. McDufflie, receiver for Richfield Oil Company of California, states company's operating profit after all operating charges, including interest on the receiver's indebtedness, but before depreciation and depletion, for the five months ended May 31 amounted to $1,677,540.

Operating profit before depreciation and depletion for the period of recevership from January 15, 1931, to May 31, 1932, totaled $4,471,812.

GILMORE OIL

New York, July 13.—Gilmore Oil Company, Ltd., declared a 20-cent quarterly dividend on the no par common stock against 30 cents paid April 30 last. Payment is due July 31 to stock of record July 15.

MOHAIR

Boston, July 13.—The purchasers of 14,500,000 pounds of mohair from the National Wool Marketing Corporation were announced today by that concern as the Sanford Mills and the Goodall Worsted Company, both of Sanford, Me. Announcement of the sale, the largest in the history of the wool trade, was made yesterday, but the names of the purchasers were not revealed. The corporation announcement did not reveal the price paid for the mohair. It did, however, express the belief that this purchase would be the forerunner to many large purchases not only of mohair but other products.

FAILURES

New York, July 13.—"Bradstreet's" index of failures registered a slight decline this week after several weeks of rapid rises. It now stands at 167.2 of the 1928-30 average and compares with 168.6 a week ago, the high point of the year, 158.6 two weeks ago, and 119.8 for the corresponding week in 1931.

The actual number of failures reported for the week ended July 7 was 505 compared with 625 last week and 362 a year ago. Liabilities fell more rapidly than the number of failures, the decrease for the week being 27 per cent. Last week showed a drop of 40.8 per cent. from the preceding week.

Commercial insolvencies reported to R. G. Dun & Co. for June numbered 2,688, with total liabilities of $76,931,452, a new record for the month but the smallest in number since December last year. The liabilities compared with $83,763,521 for May, but were 48.9 per cent. higher than the $51,655,648 for June of last year.

GUILD OPENS EXHIBIT

Chicago, July 13.—The Fisher Body craftsmen's guild has just opened an exhibit here in the Diana Court salon of the Michigan Square Building, where samples of the work of 180 boy entries from Illinois are on view. The display is attracting great public interest and large crowds.

BOTTOM REACHED IN CHICAGO STEEL MARKET IS BELIEF

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capacity engaged and two of its four blast furnaces in. United States Steel Corporation has two blast furnaces in out of twelve at Gary, and its total operations are averaging somewhat under 15 per cent. Wisconsin steel is practically at a standstill.

At present there is actually no market on scrap steel. The last sale of heavy melting steel was made some weeks ago at $6 a ton. There has been no movement since then. The railroads have large amounts of scrap on hand, but refuse to sell at present levels. The Atchison and the St. Paul roads have not moved any scrap in some six months. The present dulness is encouraging, according to one scrap dealer, who points out that the first firming up in price will bring about a scarcity in material and force prices higher. Speculative interest has been growing and large amounts of scrap have moved into the hands of speculators, who will hold it for materially higher prices.

T. J. HAY EXPLAINS USED CAR MARKET REPORT LISTINGS

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gone they are gone for ever and cannot be sold to a new owner," says Mr. Hay. "Hence, in arriving at used car allowances today the current depreciation must be the prime consideration in order for the dealer to make a profit on a decreased volume of business.

"Dealers should not deviate from scientific methods of purchasing used cars. They should not be misled by the shrinkage in new car output as an argument for over-allowances on used cars. The facts are that despite the lessened new car production and sales this year the sales and values of used cars have also declined as compared with 1931."

COURT HOLDS TAX ON MOTOR CARRIERS VALID

Des Moines, Ia., July 13.—The district court for the southern district of this state, Judge Dewey sitting, handed down a decision declaring the Iowa tax of one-fourth of a cent per ton mile on motor carriers valid, as to carriers engaged in interstate commerce exclusively. The opinion holds that while it might have been better to base the tax on the actual weight of the vehicle and load, the basis used, namely the maximum capacity, plus weight of the vehicle, is predicated on the use of the highways, which is all that is required, due regard being given to proper administration.

In the case in question the court decided that a carrier of freight by truck from points in Iowa to points in other states who operated eighty-eight trucks to principal cities of eighteen states, served many of the largest national shippers and advertised for and solicited freight for carriage, was not entitled to an injunction against the enforcement of the Iowa Motor Carrier law on the theory that it compels private carriers to become public carriers for the purpose of regulation, since he was a common carrier as distinguished from a private carrier. The act is not unconstitutional as to interstate carriers of freight by truck in so far as it requires motor carriers to furnish an indemnity bond to protect shippers sicne the act does not discriminate against interstate carriers and therefore does not constitute a burden on interstate commerce.

TAX COLLECTIONS OFF

Nashville, Tenn., July 13.—Motor vehicle tax collections for the month of May were $123,179.25, according to figures given out yesterday by the Department of Finance and Taxation. This is a material decrease from similar collections for May, 1931, when revenues from the motor vehicle tax were $154,452.80.

SPARKS *from* DETROIT

Model A Assembled Inside Tunnel

* * *

Ingersoll Retires

* * *

McCord Plant Busy

* * *

Owners Locked Out

Chris Sinsabaugh—Detroit Editor

SO as to provide transportation for city officials inspecting the new water tunnel connecting the power plant with the River Rouge, Edsel Ford last summer had a Model A assembled inside the tunnel itself. This probably is the first time an automobile ever was put together so far underground.

Now for the other extreme. A De Soto roadster is assembled 1,000 feet up in the air. That's a record that should stand until some one erects a higher structure than the Chrysler Building in New York. President Byron Foy got the bright idea of displaying one of his cars in the Chrysler tower, seventy-one stores above street level, but how to get it up there was the question.

The answer proved simple. The roadster came from the factory, was disassembled in the International Salon in the building, the parts taken upstairs by elevator and reassembled in the tower room. There it will be a permanent exhibit.

* * *

GEORGE B. INGERSOLL announces his retirement as chief engineer of the Federal Motor Truck Company in order to take up the practice of patents and patent laws, with an office in the David Stott Building, this city.

Ingersoll started out as a patent attorney, but switched to the automobile industry. For fifteen years he was with Federal, the last six as chief engineer.

"During that time I invented and developed the Federal six-wheel truck, the Federal reservoir lubricating system and handled the patent matters pertaining thereto," he writes the column.

* * *

McCORD IS RUNNING at the rate of 1,000 a day on its big order for Ford radiators and expects to make it 1,500 per diem by the end of the month. In addition to this it states that it has all the business of Hudson and Essex and is now in production on radiators for the new Essex job that is coming through. Some of the departments are running day and night.

* * *

GOING THROUGH JUNE registrations, Rockne discovers that it is in fourth place in California, a jump from seventh in May. This is a 50 per cent. increase in titling in June over May.

* * *

A FEW COMPLAINTS received by service managers of owners being accidentally locked in their cars started an investigation of why. The verdict is that this is caused by turning down the outside door handle and letting it up with a snap, the rebound motion forcing the inside control handle up into the locked position. Admitting that it is unusual to have this happen, the service managers blame it on improper mounting of the remote control unit on the regulator board. This may be corrected easily by relocating the remote control unit so it does not exert any push or pull on the other lock bolt.

* * *

OUT EAST JEFFERSON WAY the other day I picked up another bit of useful information that has to do with service. It came from F. L. Krause, manager of the tire service department of the United States Rubber Company.

Krause offers the logical suggestion that Friday of each week be selected as the day for a test of tires to see if they are in shape for the week end. Once this practice is adopted, he says, owners will add thousands of miles to the life of their casings.

Underinflation, he says, is the direct cause of approximately 80 per cent. of all premature tire failures. Two sets of tires, one run at recommended pressure and one six pounds underinflated, have shown a difference in mileage as much as 25 per cent. Overinflation rounds out the tire too much, reducing the tread width in contact with the road. This results in fast tread wear.

* * *

FACTORIES SELLING CARS in Canada will be interested in the report of Ontario's minister of agriculture that of the million dollars due on farm mortgages more than $600,000 in cash was paid in the way of interest and principal, while another indication of the stability of the farmers' finances are large holdings of Victory bonds and the increasing total of bank deposits. Farmers' buying power has not depreciated nearly as much as some people think, at least in Ontario, the minister says.

Retail Salesmen—This Is Your Page

This department is devoted to the interests of the retail sales division of the industry. Salesmen, this is your department. Automotive Daily News wants you to get something from this department that will help you in your work on the firing line. It wants you to pass on your own experiences, successes, failures to help your brother salesmen. Send in your story in the form of a letter, or even a postal card, and let us get it ready for publication. Your achievement or your mistake may help another salesman to make sales or avoid errors that cost you commissions.

Dealers read this page. Give us the benefit of your reactions on these problems that affect the work of your salesmen, the men on the firing line, the men who bring home the bacon or don't.

OWNER FOLLOW-UP LIST PRIME SOURCE OF SALES

By A. E. SCHREIBER,
Sales Manager, Pontiac Retail Store, Detroit

I am a constant reader of the Retail Salesmen's Page and surely enjoy the constructive criticism of our competitors in airing their views and working plans.

In reading over the bulletin in your paper issued by the Commercial Credit Corporation on the matter of co-operation between the service and sales departments, I can readily appreciate just such a condition existing in many of our organizations during a period when volume sales were at their peak. But under present conditions, I rise to remark, our retail selling organizations today are ever on the alert for potential buyers, and, in my opinion, leave no stone unturned to qualify prospects and create a desire to buy in the minds of service customers and owners of their own and competitive makes of cars.

In connection with "owner Follow-up" we received a plan of action which has been in use for better than a year. In my opinion, it takes the hazard or moral dread out of the salesmen's chain of thoughts relative to calling back on his owners, in fear of having to apologize or answer to the owner what is termed a service complaint. Starting from the beginning, we secured, through loal channels and our service department files, an accurate list of every Pontiac owner in our zone of influence. Incidentally, carrying a sales organization of eighteen retail salesmen, we proceeded to segregate and break down this information, spreading over the entire zone of influence, eighteen lists, and assigning each salesman a definite number of owners to contact in person every sixty days, and with one thought uppermost in our minds, namely—SALES.

But our approach is strictly from a standpoint of "service" to the owner. If the owner contacts our service station, we inquire whether or not the work he had authorized had been properly taken care of and if he had any dissatisfaction with either our service facilities or the Pontiac itself. And, last, but of prime importance, we attempt to create a desire to buy, by offering him an opportunity to ride and drive our new car, and endeavor to give our potential buyer an interesting sales talk and demonstration. Before making his departure our salesman inquires whether he is aware of the possibility of demonstrating our car to any of his neighbors or friends who might, by chance, be in the market for a car at this time.

If there is a service complaint registered by the owner during this contact, our courtesy department is informed and we proceed to clear up the situation immediately. In the event the Pontiac owner has not been in our service station, we proceed to explain the advantages of our up-to-date equipment and factory trained mechanics, and of the guarantee on our labor and parts sales. Before making his departure our salesman attempts to thoroughly convince the owner we are interested in his car performance and owner satisfaction, and not to hesitate to call upon him at any and all times to assist him in the care and maintenance of his Pontiac. In the event he is directly responsible for the sale of a new Pontiac, by virtue of his calling and sending in the name or names of an interested purchaser, he is compensated to the extent of $8 on a new car sale and $5 on a used car sale; thereby the result of the interview is terminated with a knowledge to the owner of our interest in his welfare and, in addition, a possibility to us of a new car sale in the future, beside his assistance in consummating a sale through his neighbors or friends.

During the course of a year an owner is contacted every sixty days, and signs a regular registration card; each time assuring us of his being satisfied with our car and service treatment. In the course of time our salesmen have built up a list of owners who have become mutual friends, and never hesitate to recommend our product and salesman, and even so much as go out of their way to assist us in consummating a new car sale. At times like these, when floor play is at a minimum and buyers scarce, our owner list is our most valuable source of potential buyers. And when we have created that desire to buy it is really surprising how little resistance we meet with in overcoming an appraisal objection, and how often we are given preference on an over-allowance by an associate or a competitive dealer organization.

We work our plan religiously. We have compensated numerous owners for their assistance in furnishing us with leads. We have taken the fear out of the salesmen by making their owners satisfied promptly on any complaint, no matter how small or petty the incident may be.

In the main, we absolutely credit our "Owner Follow-Up" plan with our success in keeping sales nearer up to the peak of last year's registrations. Our sales organization is for the "Owner Follow-Up" plan 100 per cent., and can readily appreciate having a clientele of satisfied owners whom they can depend upon for leads as well as their own future sales.

FORD MAY FINISH 1932 AS LEADER

(Continued from Page 1)

outputs of the two leading manufacturers this year.

The following table compares the Ford, Chevrolet and General Motors production for the first half of this year:

	Ford	Chevrolet	General Motors
January	12,500	40,000	74,710
February	13,500	40,000	62,850
March	11,500	38,890	59,696
April	22,000	55,432	78,359
May	72,140	45,000	66,739
June	95,500	37,500	52,561
Totals	217,140	255,822	394 915

STEPS UP PRODUCTION

Newark, N. J., July 13.—While there has been some curtailment in orders from automobile builders for such items as pyroxylin, used for upholstery, and rubberized fabrics for the tops of cars, the Cotex Corporation of 331-359 Oliver Street, a subsidiary of the Standard Textile Products Company of New York city, is busy on a good-sized order from one of the largest car manufacturers, according to I. R. Blackburn, vice-president of the Newark firm.

USES FULL PAGE ADS TO SELL USED CARS

By LEO J. JELLISON

Mason City, Ia., July 13.—In retrenchment programs that are current, newspapers indicate that a great many firms have cut advertising appropriations to the bone. Such has not been the procedure of the Lapiner Motor Company, Hudson, Essex, Cadillac and La Salle dealer, and if anything more use is being made of space than heretofore.

A recent seven-day sale, featuring a good many reasons as the answer to "Why Should Your Family Stay at Home?" in the form of used transportation at rock bottom prices, carried on the opening of the campaign a full-page ad. Other advertising bolstered the original, which was devoted to a general summary of forty-two models to be had at bargain prices and an outline as to payment.

SHOW MANAGERS TELL EXPERIENCES

(Continued from Page 1)

ner, Cincinnati; Claude E. Holgate, Newark; John E. Raine, Baltimore; A. B. Waugh, Omaha; George E. Bond, Kansas City; William Owings, Pittsburgh; E. G. Henry, Indianapolis; A. C. Falk, Chicago.

Addresses were delivered by Paul G. Hoffman, president of Studebaker Sales Corporation of America; James Dalton, industrial editor of Motor, and Messrs. Reeves, Owings, Berrien, Murphy, Buckman, Holgate, Gardner and Banigan.

Following the final meeting a personally conducted tour was made over the 1933 Century of Progress Exposition grounds.

SIMMONS NAMES GOLDSMITH

Cleveland, July 13.—N. Goldsmith has recently been appointed as direct factory representative for metropolitan Chicago and Chicago warehouse manager by the Simmons Manufacturing Company of Cleveland, O.

ANALYSIS COST TO SALESMEN IN OPERATION OF CAR COSTS

George Muench of Stamford, Conn., writes the following letter in answer to the question "How Much Does It Cost to Operate Salesmen's Cars?":

I have digested your article in last Thursday's issue, "How Much Does It Cost to Operate Salesmen's Cars?" This question has only one honest answer, i. e., each mileage contract requires a complete analysis by an experienced transportation man. The man, the job and the car require analysis.

Some of the factors influencing the proper rate per mile are:

TYPE OF CAR

Does the salesman require transportation only, or does the car have to be in the higher price bracket, either to suit the driver or to suit the stability and magnitude of the firm represented?

MILEAGE

What is the total yearly mileage? The mileage for the firm plus the mileage for the driver's personal business. Total mileage per year influences the cost per mile of the fixed expense; i. e., license, insurance, interest, storage, garage and painting. A low yearly mileage will also affect depreciation, because obsolescence will then enter into the computation.

DEPRECIATION

Can be based on expected useful life of car in months, but the salesman would prefer a rate based on expected useful life in miles. In your typical statement, you show a rate of .0303 per mile, which is too high, because $937 divided by .0303 would give a total useful mileage life of 31,000 miles, which is considerably below the useful mileage built into a car of this price. A more equitable depreciation rate on this car would be .02 per mile, which would show a total of 47,000 useful miles built into the car.

FIRM REPRESENTED

Has the firm facilities for passing on to the salesman discounts on the purchase of a new car, gas, oil, tires, parts and insurance?

TYPE OF DRIVER

Is the driver hard or easy on a car? Does he use poor judgment in starting and stopping the car? This factor influences the cost on mechanical repairs, such as brake repairs, tire repairs, spring repairs, accidents, starter and starter gear repairs, etc. The driver is also responsible for maintaining the proper tire pressures, water level in battery and radiator, oil level in engine. If the driver is conservative with a car, his maintenance costs per mile will be low; if he approaches recklessness, his costs will be high.

Briefly, the following also enter into the picture: miles per stop, traffic, road structure, grades, curves and personal use of the car.

A transportation man should make the analysis and set the rate equitable both to the firm represented and to the salesman. My personal experience shows that most mileage contracts are based on some other company's rate or some other equally unsound basis.

FOUR SALESMEN IN ONE FIRM HAVE INDIVIDUAL METHODS

By CHARLES B. BARR

Four salesmen for the Guilbeau Motor Company, Ford dealership of Gilbert St., Bridgeport, Conn., have four distinctly different fields to work in and methods of approach. Each of these men has set a good record in the sale of both new and used cars, and it was an interesting occasion when the representative of Automotive Daily News sat down with the group for an informal chat on salesmanship.

A. Bender opened the discussion by explaining how he specialized in selling cars to golf enthusiasts. Mixing with the players at various country clubs, Mr. Bender makes discreet inquiries about their interests in the automobile line and arranges to drive possible prospects to and from the links.

Mr. Bender "talks golf" to the men, joshing them about their scores and generally playing the role of a "good fellow." He has found it pays to cultivate the friendship of the golf professionals at the various courses. It is not necessary to play the game, he says, a knowledge of the fundamentals being sufficient.

He has "worked" most of the courses in the Bridgeport area, and has sold as many as five cars at one links in a season. The practice of offering rides to golfers he finds a good one, inasmuch as it amounts to doing the prospect a favor and at the same time giving him a demonstration.

John W. Glynn told the writer that in his opinion the prospect must be sold on three things: The product, the house and the salesman. Lack of confidence in any one on the prospect's part generally means the sale is lost.

In the case of used cars, confidence in the salesman and the house is essential, as a reconditioned car can be taken for granted, as a new one can, he pointed out.

Mr. Glynn has been successful in getting his friends to build sales for him. One man who has never bought a car from him has nevertheless been responsible for three sales made by the Guilbeau representative.

Horseback riding and automobile selling are pleasantly and successfully combined by Harold R. Keeler. Mr. Keeler holds membership in an exclusive riding academy near Bridgeport, and he makes it a policy to bring a different model Ford to the club every week. He stages demonstrations on and near the grounds and has sold a number of cars to riding enthusiasts.

Shore resorts near Bridgeport have proven a good hunting ground for Bert Atlas, who contacts men in various sporting and amusement circles. Mr. Atlas sold seventeen used cars and four new cars during the month of June, 75 per cent. of them at the beaches.

Mr. Atlas believes that his success has been due largely to having gained a reputation for honesty. He has always made it a point to insist that he will not attempt to sell a defective car.

New Dealers Appointed

NEW YORK

Graham-Paige — Kunkel Auto, Inc., Brooklyn; William E. Gordon Company, Inc., Long Island City; Findlay's Garage, Washingtonville.

Nash—Bay Ridge Nash Company, Brooklyn; Doebler-Hatch, Inc., Tonawanda.

Rockne — Uhlein Motor Sales, Watertown; Slade Brothers, Ballston Spa; Brown & Dye, Akron; Pereau's Garage, North Creek; E. F. Paynter, Franklinville; Pierce-Arrow Sales Corporation, Brooklyn; Marty Motors Corporation, Pleasantville.

Studebaker—Mekeel Brothers, Nelsonville.

OKLAHOMA

Nash—C. K. Springfield, Sayre.

Rockne—Farquharson & Brumett, Guthrie.

OREGON

Nash—Columbia Auto Company, Astoria.

Rockne—M. J. Campbell Garage, Clatsakanie.

Studebaker — Nelson Garage, Cromwell.

PENNSYLVANIA

Graham-Paige — Stuchell Garage, Indiana.

Nash—The Terner Nash Company, Wilkinsburgh; Garvin Garage & Supply, Beaver; Sharpsburg Motor Company, Sharpsburg.

Rockne—Solt Motor Company, Slatington; Enterprise Garage, Bristol; William Baehr Motors, Inc., Pittsburgh; Painter-Dunn Company, Pittsburgh; Sharon Motor Company, Sharon; Farris Morton Motor Sales Company, Pittsburgh; Hetzler Motors, Inc., Dormont; John H. McGowan and Son, Downingtown.

Studebaker—Wilkie Sales Company, Philadelphia.

RHODE ISLAND

Rockne — Baileys Motor Sales, North Kingston.

SOUTH CAROLINA

Rockne—Fred A. Fuller, Inc., Spartanburg.

SOUTH DAKOTA

Studebaker—Candy Garage, Webster.

TENNESSEE

Studebaker—J. L. Holbrook, Dresden.

WEST VIRGINIA

Rockne—Morgantown Motor Company, Fairmont.

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday and Monday by
AUTOMOTIVE DAILY NEWS PUBLISHING CORPORATION
350 Hudson St., New York, N. Y.
O. J. Elder, President H. A. Tarantous, Vice-President Alexander Johnston, Secretary
Entered as second-class matter August 27, 1925, at the post office at New York, N. Y., under the Act of March 3, 1879
350 Hudson St., New York, N. Y. Telephone CA nal 6-1000.

MEMBER A. B. C.

Mail subscriptions to CIRCULATION DEPARTMENT 1926 Broadway
Telephone TR afalgar 7-4500

Subscription Rates: One year, $12.00; two years, $20.00 for United States and Canada, also Mexico, Cuba and Panama
To Other Countries, One Year, $15.00; two years, $26.00. Single copies 5 cents.

THURSDAY, JULY 14, 1932

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Utility Rules

THERE HAS BEEN considerable talk lately regarding the impending arrival of "gadgetless automobiles." This term is used to describe a vehicle embodying the essentials of a highway transportation unit but lacking some of the equipment designed to add to the comfort and convenience or to please the pride of the owner.

There is simply no doubt that the long-drawn-out depression has worked a change or a development, if you will, in the buying habits of Americans. During our years of prosperity we formed the habit of treating ourselves to just about everything that happened to catch our fancies. We had plenty of money and we could afford to gratify a natural ambition to have whatever appealed to our individual tastes. Being human we liked luxury and treated ourselves to a generous portion thereof and this applied in full measure to the motor vehicles we bought.

It cannot be denied that the three lean years have changed this habit of giving ourselves whatever we wanted. We have learned to be content with utility rather than luxury. Even the ladies have learned that good wool cloth keeps the wearer just as warm as Russian sable, or does it? But anyway that is the idea and much wool cloth has been worn instead of the products of rare and expensive fur-bearing animals.

How far the demand for gadgetless motor transportation may go depends considerably on the length of continuance of the depression and on its further course. But certain is one thing, there are great classes of people in this country which once could demand luxury within modest limitations which now have to be content with plain utility. Perhaps we shall see gadgetless cars in considerable numbers, giving our people transportation efficiency at the lowest possible price. And then if and when prosperity returns we shall see the gadgets beginning to reappear on those same stripped transportation units in exact proportion to the upward turn of buying power and renewed demand for comfort and convenience in whatever degree the individual is able to purchase it.

All this will mean much to the alert salesman, who fits his operations to the conditions of the times. The keen salesman today will emphasize utility in his sales talk. He will point out the durability, the economy and efficiency of his car, rather than emphasize points of less immediate interest. The public today is interested in getting the most for its transportation dollar and fortunately our motor cars give just that.

THIS IS NOT a piece of advice on watching the movements of that festive animal known as the road hog, although it always is wise to pay close attention to what that person does when he is behind a wheel. No, we are referring to the common hog of commerce, which has lately displayed considerable signs of life in a price way, after being pretty well a dead porker over a long period of months.

Within the past month prices for hogs have increased fifty-seven per cent. in the Chicago market. This advance has carried with it prices of other meat animals. Beef cattle have increased some seventeen per cent. and with these rising quotations have gone grain prices.

It is too early to say that this means actual business revival, but this we can say: When revival does come increases in commodity prices, particularly farm products, will be one of the earliest signs visible to the general public.

Charles A. Wilson, president of the Chicago Livestock Exchange, commented on this rise in animal products: "If anything can pull the country out of the depression it will be hog and cattle prices. The present advance is on a firm foundation and looks as if it will hold."

The new prices mean a difference to the farmers of between $200 and $300 a carload of hogs. If the advance proves firm, buying power in the granger states will be improved by just so much.

We can only hope and pray.

A. D. N. Offers Dealers $100 for Letter

This Newspaper Will Pay $100 for Best Letter of Month, $5 for Best Letter Each Day. Read Offer Below

IT has been decided to broaden a little the rules of the prize contest which Automotive Daily News is now running. Instead of offering prizes for letters from dealers who are doing more business than they did last year, we now include all dealers, even though they may not be exceeding the profits they earned in 1931.

Therefore, Automotive Daily News offers a monthly prize of $100 for the best letter from any dealer, telling how he has managed to keep his business out of the red this year, or giving the most constructive idea on how to increase profits, even though his own business may not be exceeding that of 1931. The plan is to pass on to other dealers methods, systems or ideas that will help them get more out of this reluctant market. The editors of Automotive Daily News will be the judges of which letter is best, and prizes will be awarded by them, their judgment being final.

Furthermore, Automotive Daily News will publish every day the best letter received that day and will pay the dealer writing it $5.

Get busy, you dealers, and grab yourselves $100 or a consolation $5, by passing on to your fellows the recipe that is enabling you to make money in a tough year.

AUTOMOTIVE FUELS, LUBRICANTS*

By C. A. ARENTS,
Oregon State College, Corvallis, Ore.

In speaking of gasolines it is well for us to have some idea of what gasoline really is. Gasoline is not a simple substance like water, but is a complex mixture or mechanical inter-solution of some twenty-five hydrocarbons ranging in specific gravity from 0.630 up to 0.882. As we know, gasoline has various uses, but this evening we are interested in gasoline only as a source of motive power.

Since gasoline is a complex mixture of some twenty-five hydrocarbons, no one simple test will serve to evaluate the utility of a gasoline. It is for this very reason that the gravity test which was formerly used in Oregon as a measure of the utility value of a gasoline was not actually indicative of quality. In view of the above fact it is evident that before we can make a satisfactory evaluation of a gasoline, it is necessary to decide upon the desirable qualities of a good gasoline, the relative importance of these qualities, and satisfactory quantitative tests.

In a questionnaire sent out by the Shell Petroleum Corporation it was found that the public desired some twenty-five items of quality in a gasoline. Of these twenty-five items there were some that could not be satisfactorily evaluated. In eliminating these indefinite properties such as smoothness, pep, zip, etc., the desirable properties could be resolved into a general classification as follows: power output, starting, anti-knock, oil dilution, and purity. Under power output we have acceleration, mileage, top speed and hill-climbing ability.

The important properties of gasoline may best be explained under the test to which they belong. The tests for gasolines in general in order of their probable importance are as follows: A. S. T. M. distillation, anti-knock, gum formation and sulfur. The tests for gravity, "doctor," color and saturation, the speaker considers of little or no importance.

There are two methods of determining the volatility characteristics of a gasoline, viz, the A. S. T. M. distillation test and the equilibrium-air distillation method, the former being the standard method in which 100 cc. of the gasoline is distilled according to the specifications laid down by the American Society for Testing Materials (Method No. D86-27). In this method of batch distillation a certain degree of fractionation takes place, and the initial boiling point is not closely related to the vapor pressure, first, because it neglects from 1 to 5 per cent. of the light hydrocarbons that do not show up in the condenser, second because the thermometer is placed in the neck of the flask and not directly in the liquid, therefore, showing a pronounced lag. As the distillation proceeds, the nature of the residue in the flash is continually changing. The end-point in most cases lies between 375 and 425°F., a much higher temperature than is required to produce complete evaporation in the manifold of an engine.

From the above brief discussion of the A. S. T. M. distillation test it is evident that this test fails in every respect to meet the conditions encountered in the automotive engine itself. In the carburetor and manifold of an engine the gasoline is introduced with a continuous stream of air, and the gasoline vaporizes at a fairly low temperature. All of the vaporized constituents remain in contact with the unvaporized gasoline which has a marked effect upon the vapor pressure and the composition. Since the A. S. T. M. distillation fails to meet these conditions of actual operation, the equilibrium-air distillation test was developed, because it roughly duplicated the conditions encountered in the engine. In this test a definite amount of fuel is vaporized in the presence of a predetermined volume of air as for example 12 parts of air to 1 part of fuel. This would approximate conditions in an engine operating at the same air-fuel ratio.

Due to many tests and much investigation in the past few years there now exists a close relationship between the equilibrium-air distillation test and the A. S. T. M. test. Dr. O. C. Bridgeman, research associate of the Bureau of Standards, and others have derived empirical relationships between the equilibrium-air distillation temperature and the A. S. T. M. temperature at the same per cent. vaporized which appears satisfactory for practical purposes.

Since the fundamental weaknesses of the A. S. T. M. distillation test have been realized, and since satisfactory empirical relationships between the important volatility characteristics of a motor fuel and certain points on the A. S. T. M. distillation curve have been determined, the A. S. T. M. distillation curve has a very definite meaning and at the present time seems quite satisfactory.

The important points on the A. S. T. M. distillation curve can best be explained by looking at slide No. 1. It has been definitely decided that the 10 per cent. point corrected for loss is a good measure of the starting characteristics of a gasoline. Government specifications require that this point shall fall between 110° F. and 164° F. Most present-day gasolines show the 10 per cent. corrected for loss below 150° F. Roughly speaking, the 10 per cent. point corrected for loss should be held between 125 and 150° F. to give satisfactory starting for an atmospheric temperature range of zero to 70° F.

The 10 per cent. point not only measures the ease of starting, but also indicates the temperature at which vapor lock and vapor loss will occur. Vapor lock or gas lock is due to the formation of a bubble of vapor in a gasoline line or carburetor jet when the vapor pressure of the gasoline is greater than the atmosphere pressure plus or minus the head causing the gasoline to flow to the carburetor. This cuts down the fuel supply to the cylinders, thus stalling or starving the engine. Vapor loss is merely the loss of gasoline in the tank or fuel system, due to evaporation when the temperature reaches or exceeds the 10 per cent. point. The loss in the volume of gasoline due to vaporization is more important to the distributor of gasoline than to the average automobile operator, because the gasoline turnover in the automobile tank is usually very frequent, whereas the turnover in some of the large storage tanks may sometimes be very infrequent.

It might be mentioned that vapor

...inued on Page 7)

*"A paper presented at recent meeting of the S. A. E. Section in Portland, Ore.

COMING EVENTS

JULY

17—**Germany.** Grand Prix Automobile Race.
17-19—**Detroit.** National Team and Truck Owners' Association.
20-22—**Llandrindod, Wales.** Commercial Car Show.

AUGUST

22-26—**Denver, Col.** American Chemical Society Convention.
30-Sept. 1—**Cleveland.** S. A. E. Aircraft Meeting.

SEPTEMBER

12-17—**Cleveland.** Machine Shop Practice Meeting, A. S. M. E.
15-17—**Atlantic City, N. J.** American Trade Association Executives Annual Meeting.
19-20—**Harrisburg, Pa.** Pennsylvania Automotive Association Convention.
22-23—**Chicago.** National Association Motor Bus Operators.

OCTOBER

3- 7—**Buffalo, N. Y.** National Metal Congress. Sponsored by American Society for Steel Treating, with co-operation of American Society of Mechanical Engineers, Institute of Metals and Iron and Steel Divisions of American Institute of Mining and Metallurgical Engineers, American Welding Society, Wire Association.
3- 7—**Washington, D. C.** National Safety Council Meeting.
3- 7—**Buffalo, N. Y.** National Metal Exposition, 174th Regiment Armory. W. H. Eisenman, 7016 Euclid Ave., Cleveland, director.
4- 6—**Toronto.** Transportation Meeting, S. A. E.
13-22—**London, England.** Olympia Show.
17-22—**Atlantic City, N. J.** National Hardware Association, Accessories Branch.

NOVEMBER

14-16—**Atlanta, Ga.** National Tire Dealers' Association.

DECEMBER

2- 3—**Chicago.** National Standard Parts Association Convention.
5- 9—**New York.** Annual Meeting A. S. M. E.
5-10—**New York.** Power and Mechanical Engineering Exposition.
5-10—**Detroit.** Third Annual Joint Trade Show, National Standard Parts Association and Motor and Equipment Manufacturers' Association, Convention Hall.

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FUSION WELDING AS RELATED TO STEEL CASTINGS

By R. S. QUINN
Treasurer, Lebanon Steel Foundry
(FOURTH INSTALLMENT)

REPORT NO. 14

TENSION TESTS ON WELDED BARS. Full-annealed 2 hours at 1650° F., after welding with rod cast in heat No. 208.

Chemical composition, heat No. 208: carbon 0.44 per cent., manganese 0.55 per cent., silicon 0.64 per cent., chromium 18.22 per cent., copper 0.91 per cent.

	Tensile Strength, Lb. Per Sq. In.	Yield Point, Lb. Per Sq. In.	Elongation in 2 In., %	Reduction of Area, %
No. 83	90,700	53,250	10.2	11.3
No. 84	85,900	52,250	8.6	9.8
No. 85	89,750	54,000	8.6	8.6
No. 86	92,000	55,000	9.4	9.3
Average	89,587	53,625	9.2	9.7

REPORT NO. 15

TENSION TESTS ON WELDED BARS. Normalized at 1650° F., and drawn at 1275° F., after welding with 2 grades of rods.

Chemical composition, heat No. 209: carbon 0.30 per cent., manganese 1.32 per cent., silicon 0.45 per cent.

	*Rod	Tensile Strength, Lb. Per Sq. In.	Yield Point, Lb. Per Sq. In.	Elongation in 2 In., %	Reduction of Area, %
No. 87	C	65,500	41,000	17.2	39.4
No. 88	C	65,500	41,500	18.5	51.4
No. 89	D	81,500	48,500	18.5	57.5
No. 90	D	81,500	48,500	11.7	25.1

*Rod C was cast in heat No. 209. Rod D was rolled and contained 0.47 per cent. carbon, 1.98 per cent. manganese, 0.56 per cent. silicon, 0.020 per cent. phosphorous and 0.020 per cent. sulphur.

DATA FROM TESTS MADE UNDER AUTHOR'S DIRECTION

Many experiments have been conducted at the plant of the Lebanon Steel Foundry, and elsewhere for this plant, extending over a period of several years, to ascertain the kinds of equipment, supplies, voltages, ampereages, gas pressures, etc., to employ selectivity for most effectively welding steel castings of widely varied compositions.

A few of the results obtained at the foundry mentioned are indicated below; not, however, with the claim that they represent, in any instance, the most effective welding capable of being done with the material in hand, but with the hope that they may be helpfully suggestive. Limitations of space left after reporting results secured in other plants and laboratories, prevent elaboration on the tests made in the foundry with which the author is connected.

REPORT NO. 16

TESTS OF CAST STEEL WELDED BY THE ARC METHOD

TENSION TESTS ON WELDED BARS. Coated welding rod contained 0.13 per cent. carbon, 0.46 per cent. manganese and 0.04 per cent. silicon, no special alloys being found on analysis.

Chemical composition, heat No. 210: carbon 0.27 per cent., manganese 0.78 per cent., silicon 0.38 per cent.

Normalized 40 minutes at 1675° F., and drawn 1 hour at 1310° F., after welding with coated rod.

	Tensile Strength, Lb. Per Sq. In.	Yield Point, Lb. Per Sq. In.	Elongation in 2 In., %	Reduction of Area, %
No. 91	54,000	35,700	18.8	53.3
No. 92	52,750	35,500	20.3	59.8
No. 93	53,250	34,250	16.4	48.8
No. 94	53,500	39,000	17.9	57.3
Average	53,375	36,250	18.3	55.1

Oil quenched after heating 1 hour at 1650° F., and drawn 1 hour at 1000° F.; all following preliminary normalization 40 minutes at 1675° F.

No. 95*	71,520	51,450	14.8	42.2
No. 96	70,000	51,960	12.5	40.7
Average	70,760	51,705	13.6	41.4

*Analysis of weld metal showed 0.06 per cent. carbon, 0.33 per cent. manganese and 0.17 per cent. silicon.

REPORT NO. 17

TENSION TESTS ON WELDED BARS. Normalized 1 hour at 1700° F., and drawn 1 hour at 1275° F., after welding with carbon steel, rod E, and with alloy steel, rod F, both rods being coated.

Chemical composition, heat No. 211: carbon 0.29 per cent., manganese 0.74 per cent., silicon 0.38 per cent.; heat No. 212: carbon 0.30 per cent., manganese 1.33 per cent., silicon 0.39 per cent

Heat	Bar	Rod	Tensile Strength, Lb. Per Sq. In.	Yield Point, Lb. Per Sq. In.	Elongation in 2 In., %	Reduction of Area, %
No. 211	No. 97.	E	67,250	43,250	14.8	19.9
No. 211	No. 98.	E	67,250	42,750	17.2	42.2
No. 211	No. 99.	F	65,250	42,250	15.6	39.1
No. 211	No. 100.	F	66,750	45,000	17.2	40.1
No. 212	No. 101.	E	67,250	39,000	14.1	27.5
No. 212	No. 102.	E	65,500	40,500	15.6	43.4
No. 212	No. 103.	F	67,000	41,250	14.8	44.9
No. 212	No. 104.	F	66,000	41,500	14.1	36.0

REPORT NO. 18

TESTS OF CAST STEEL WELDED BY THE OXY-ACETYLENE METHOD

TENSION TEST. Normalized 1 hour at 1650° F. and drawn 1 hour at 1200° F.

Chemical composition, heat No. 213: Carbon 0.25 per cent., manganese 0.70 per cent., silicon 0.35 per cent.

	Rod	Tensile Strength, Lb. Per Sq. In.	Yield Point, Lb. Per Sq. In.	Elongation in 2 In., %	Reduction of Area, %
Unwelded Bar—					
No. 105		72,000	40,000	29.0	48.0
Welded Bars—	Rod				
No. 106	A	68,750	42,000	14.5	39.4
No. 107	A	69,500	44,000	16.5	49.2
No. 108	A	43,500	43,500	16.5	46.6
Average	A	68,915	43,167	15.8	45.1
No. 109	B	63,000	43,000	16.0	55.0
No. 110	B	65,250	43,500	17.5	58.1
No. 111	B	66,500	46,000	17.5	57.1
Average	B	64,915	44,167	17.0	56.9

Miscellaneous Comments on Tests Mads with the Co-operation of the Author:

The author has reported results made known to him, obtained at

(Continued on Page 7)

CUSHION CLUTCH PLATE WITH DAMPENER

The Perfection Dual-Flex cushion Clutch plate with dampener is the latest addition to the line of certified parts manufactured by the Perfection Gear Company.

Dampener, or spring center is designed to eliminate torsional vibration that otherwise would be passed on to the transmission and on through the driving line. The hub is full floating. Drive is taken up by a series of three laminated springs so that minor vibration impulses are absorbed without transferring movement to the frictional area, while major driving forces are properly transmitted. Three lever tongue construction of plate is designed, so that the combination of angles results in a dished plate with roll or dual action.

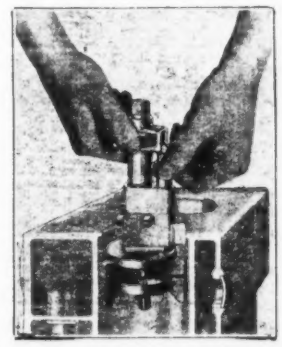
As pressure is applied, as the clutch is being engaged, the flexing action of the plate keeps reversing itself until the clutch is fully engaged.

A perfect cushion is claimed to be produced, assuring silent, smooth, positive clutch action.

Production has not been limited to a few of the most popular cars, but a complete line is offered to the replacement trade.

Interchangeability cuts the need for large stocks, and a comparatively small number of plates will service a large number of different makes and models, it is stated.

NEW RIDGE REAMER



A new tool for removing the cylinder ridge above the piston ring travel in cylinders, including all types of recessed or cut-away cylinders, is announced by the Automotive Maintenance Machinery Company.

This ridge reamer is described as being a sturdily constructed tool that locates below the ridge where it is centered and held in the cylinder itself, so that the exact shape and contour of the cylinder bore is maintained. The blade provided with the reamer has two cutting ends to give either straight or tapered cut. The tapered blade prevents cutting too far into one side of the cylinder while removing the ridge from the other.

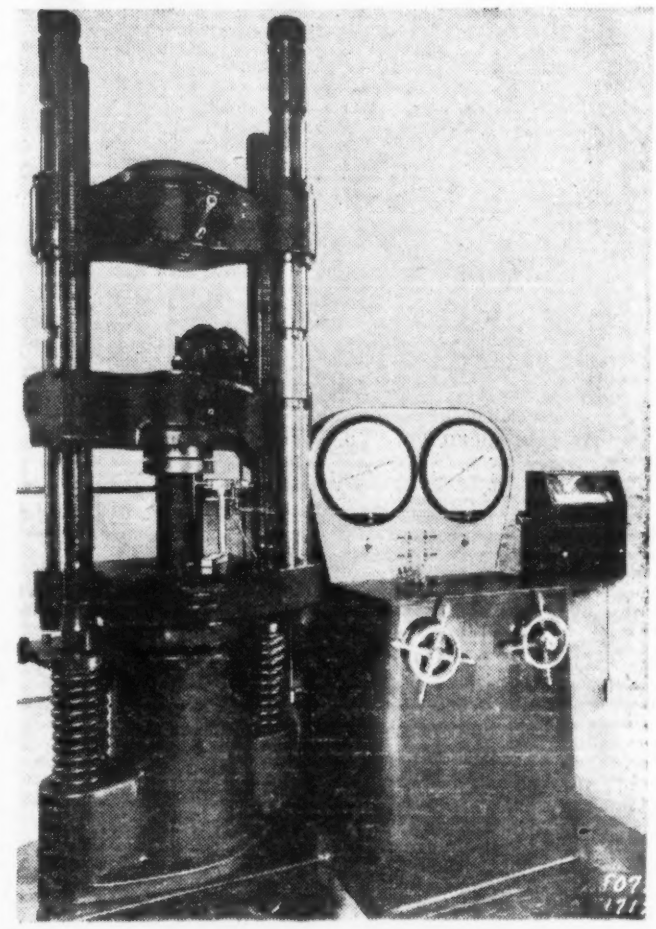
This ridge reamer removes ridges of any depth. There are only two adjustments, and any wrench operates the tool.

TWO-WAY SIDE-DUMP BODY

The Eagle Truck Body and Manufacturing Corporation has developed a two-way, side-dump hoist for use under its two ton coal and coke bodies and also under the 1½ and 2 yard contractors' bodies.

This new hoist is reversible in action and operates completely by the use of one power takeoff in the cab. When the operator pulls the level back the body dumps to the left. Pushing the lever forward dumps the body to the right. The reverse action in either case lowers the body. Adjustable stops are provided which automatically stop the body at 25, 28, 32 or 40 degrees of dumping angle. This new unit is recommended to the coal and coke trade and for shoulder work on the sides of roads and in other services where dump bodies are practical.

Stress Strain Recorder



The Baldwin-Southwark Corporation has developed the Southwark-Emery stress-strain recorder, recommended for research work because of the high decree of precision of diagrams claimed for it. It is described as being suitable for routine testing because it is virtually fool-proof and is automatic in operation and is a definite departure from the better-known forms of "autographics," which are mechanical devices, limited as to range variation and as to strain multiplication ratio. In this recorder the forces necessary to the motions of the recording elements are derived from a small electric motor. The extensometer and the loading element control the pencil and drum motions, just as the grid potential of a vacuum triode controls the current passing between anode and cathode. The sensitivity of the Southwark-Emery recorder is such that 0.00001 inch strain in the specimen produces a readable motion of the recording pencil. Strain magnification up to 1,500 times may be obtained, and this ratio is exact throughout the entire motion of the extensometer. The two ranges usually supplied with stock recorders are 250 and 500, but other ranges are available.

Speeds of testing up to the maxima specified by the A. S. T. M. may be employed while using the standard recorder, and the pencil will follow the test without lag. For speeds of testing higher than those above, it is necessary to make special provision in the recorder-drive mechanism. When such eventuality is anticipated, it should be so stated, and prices will be quoted accordingly.

Several curves may be drawn on the same chart by shifting the starting point of the pencil for each test. Stress-and-strain values may be accurately scaled from the chart from lines drawn through the origin of co-ordinates.

The principle of operation is based upon that found in the most accurate of recording instruments; namely, the use of an outside source of power (a small motor in this case) to operate the moving parts, the motion being controlled by the values to be measured.

The extensometer is built under exclusive license from the Goodyear-Zeppelin Corporation of Akron. It was developed by them for testing duraumin sheet specimens and has been adapted for a wide variety of specimens by the Baldwin-Southwark Corporation. It consists of a steel frame, very flexible in the direction of the axis of the specimen, but very rigid in every other direction. The multiplying lever and micrometer screw are mounted in a plane perpendicular to that of the mounting screws. This provides automatic averaging of strain in case of unequal extension of the specimen. The extensometer is electrically connected to the recorder. As the specimen elongates the electric contact is broken. The relays and solenoid system in the recorder, operating upon a sensitive-toothed clutch, mechanically urge the spindle to follow up the retreating contact. The follow-up force is applied at the sheave, which may vary in diameter in accordance with the multiplication range desired. A micrometer head is fitted to the spindle to permit determination of the constants of the instrument.

The mounting of the extensometer can be made quickly and simply. No gauge marks are required.

The load element, by the same token, serves as a control. An Emery pressure element, one of those used in the Emery indicating instrument, by its elastic deformation under changing loads, operates a contact disck which, in turn, acts upon a relay and solenoid system, a duplicate of the extensometer system, which, in turn, acts upon the sensitive clutch.

There are condensers in all circuits to eliminate sparking at contacts. These two similar electrical circuits are so interconnected that a single motor and transmission system furnishes power for both motions. The pencil writes the exact integration of the two test values at the same rate as the values change, moving in rapid steps so small as to cause the trace to be essentially a straight rather than a stepped line. The entire system is described as being rugged, positive and practically foolproof.

The placing of the chart on the drum and its removal are facilitated by two quick-opening fingers, each held by a light trigger.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

PASSENGER CAR EQUIPMENT AND ACCESSORIES

MAKE AND MODEL	Speedometer	Clock	Fuel Gauge	Lock	Spark Plugs	Battery	Heat Indicator	Cig. Lighter	Non-Shatter Glass	Heater	Horns Make & No.	Adjustbale Seats?	FREE WHEELING Make	FREE WHEELING Clutch Control	FREE WHEELING Synchro Mesh	Trunk Rack	Trunk	Windshield Wings	Wired for Radio	Color Options	Wheels	Wire or Wood	Spring Covers	Shock Absorber
Auburn 8-100	—	—	—	—	Cha	USL	—	Cas	—	—	—	—	LGS	No	Yes	C	—	—	No	C	**	—	—	Del-RC
Auburn 12-160	—	—	—	—	Cha	USL	—	Cas	—	—	—	Yes	LGS	No	Yes	Yes	—	—	No	Yes	**	—	—	Hou-RC
Austin	NE	NO	K-S	B-S	Cha	USL	No	No	No	No	—	—	—	—	—	—	—	—	No	—	—	—	—	Own
Buick 32-50	AC	—	AC	Oak	AC	DR	AC	No	§LOF	—	DR-1	—	BW	Yes	Yes	No	—	—	No	Yes	K-H	Wo	—	Del-RC
Buick 32-60	AC	—	AC	Oak	AC	DR	AC	No	§LOF	No	DR-1	—	BW	Yes	Yes	No	—	—	No	Yes	K-H	Wo	—	Del-RC
Buick 32-80	AC	—	AC	Oak	AC	DR	AC	Cas	§LOF	—	DR-1	—	BW	Yes	Yes	No	—	—	No	Yes	K-H	Wo	—	Del-RC
Buick 32-90	AC	—	AC	Oak	AC	DR	AC	Cas	§LOF	—	DR-1	—	BW	Yes	Yes	No	—	—	No	Yes	K-H	Wo	And	Del-RC
Cadillac 370B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-1	—	No	No	Yes	No	—	—	Yes	No	K-H	Wi	And	Del-RC
Cadillac 452B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-1	—	No	No	Yes	No	—	—	Yes	Yes	K-H	Wi	And	Del-RC
Cadillac 355B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-2	—	No	No	Yes	No	—	—	Yes	No	K-H	Wi	And	Del-RC
Chevrolet	AC	—	AC	DR	AC	***	AC	—	$	*	—	—	—	No	Yes	—	—	—	No	—	Own	Wi	—	Del
Chrysler 6	—	No	Yes	—	—	—	Yes	Cas	$	*	—	—	—	Yes	—	$	$	$	No	—	—	Wi	§	—
Chrysler 8	—	—	Yes	—	—	Wil	Yes	Cas	Dup	*	—	—	—	Yes	—	$	$	—	Yes	—	—	—	And	—
Chrysler Imp. 8	—	Yes	—	—	—	Wil	Yes	Cas	Dup	*	—	—	—	Yes	—	Yes	$	—	Yes	—	—	—	—	—
Chrysler Cust. 8	—	Yes	—	—	—	Wil	Yes	Cas	Dup	*	—	—	—	Yes	—	Yes	$	—	Yes	—	—	—	—	—
Cord Front Drive	Ste	No	Mot-M	DR	Cha	USL	Ster	Cas	—	No	—	—	—	—	—	—	—	—	No	—	—	—	—	Hou
De Soto Six	NE	No	Mot-M	DR	AC	Wil	Yes	No	$	No	—	—	—	Yes	—	CCC	$	%	Yes	Yes	K-H	Wi	—	Del
De Vaux 6-80	Ste	No	Mot-M	Yale	Cha	Nat	Mot-M	No	—	No	—	—	—	No	—	—	—	—	No	—	—	—	—	Hou
Dodge Six	—	$	AC	DR	AC	Wil	AC	$	$	$	—	—	—	No	—	—	—	—	Yes	—	—	—	§	Del
Dodge Eight	—	$	AC	DR	AC	Wil	AC	$	$	$	—	—	—	Yes	—	—	—	—	Yes	—	—	—	And	Del
Essex Gr. Su. 6	Ste	—	Mot-M	Ele	AC	Ex	K-S	—	Dup	—	EA-1	Yes	WG	Yes	Yes	$	$	—	No	Yes	MW	¶	—	Mon-RC
Ford A	Own	No	Yes	Hurd	Cha	Own	No	—	Yes	—	—	—	No	No	Yes	—	—	—	Yes	—	—	Wi	—	Hou-RC
Ford V-8	Own	No	Yes	Hurd	Cha	Own	No	—	Yes	—	—	—	No	No	Yes	—	—	—	Yes	—	—	Wi	—	Hou-RC
Franklin Series 16	NE	Borg	Yes	Yale	Cha	Nat	No	Cas	LOF	No	—	—	BW	No	Yes	‖	‖	—	Yes	—	—	Wo	—	RC
Franklin V-12	NE	Borg	Yes	Yale	Cha	Wil	No	Cas	Yes	No	—	—	BW	No	Yes	‖	‖	—	Yes	—	—	Wo	And	RC
Graham 6	NE	—	K-S	Her	Cha	Wil	K-S	No	LOF	No	DR-2	Yes	WG	No	No	No	No	—	No	—	MW	Wi	No	Del
Graham 6 (1933)	Ste	—	K-S	Her	Cha	Wil	K-S	No	$	No	DR-2	Yes	—	Yes	Yes	No	No	—	No	Yes	MW	¶	No	Del
Graham 8	Ste	—	K-S	Her	Cha	Wil	K-S	No	—	No	DR-1	Yes	WG	No	Yes	No	No	—	No	—	MW	¶	No	Del-RC
Hudson Great 8	Ste	—	Mot-M	Ele	AC	Ex	K-S	—	Dup	—	EA-1	—	WG	Yes	Yes	Su	Su	—	No	Yes	—	Wi	—	Gab-RC
Hupmobile 216	Ste	No	Mot-M	Ele	Cha	Wil	Mot-M	No	§Dup	No	—	—	WG	No	Yes	S	—	—	Yes	Yes	MW	¶	—	Gab-RC
Hupmobile 222	Ste	No	Ste	Ele	Cha	Wil	Ste	No	§Dup	No	—	—	WG	No	Yes	S	—	—	Yes	—	MW	¶	—	Gab-RC
Hupmobile 226	Ste	No	Ste	Ele	Cha	Wil	Ste	Cas	§Dup	No	—	—	DG	No	Yes	S	—	—	Yes	—	MW	¶	Yes	Gab-RC
La Salle 345B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-2	—	No	No	Yes	—	—	—	Yes	TS	K-H	Wi	And	Del-RC
Lincoln V-8	NE	Wal	K-S	Oak	Cha	Ex	Mot-M	Cas	$	No	—	—	Yes	No	Yes	P	—	—	Yes	—	Own	Wi	And	Hou-RC
Lincoln 12	NE	Wal	K-S	Oak	Cha	Ex	Mot-M	Cas	$	No	—	—	Yes	No	Yes	P	—	—	Yes	—	Own	Wi	And	Hou-RC
Marmon 8-125	NE	$	AC	DR	Cha	Nat	AC	—	—	—	—	—	No	Yes	Yes	—	—	—	Yes	Yes	Day	Wi	—	Gab-RC
Marmon 16	AC	Jag	AC	DR	Cha	Ex	Mot-M	Cas	—	—	SW-1	—	No	No	Yes	Yes	—	—	Yes	Yes	MW	Wi	And	Hou-RC
Nash Big 6	Ste	No	K-S	Her	AC	USL	K-S	No	§Dup	No	SW-1	—	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	—	Del-RC
Nash Standard 8	Ste	No	K-S	Her	AC	USL	K-S	No	§Dup	No	SW-1	—	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	—	Del-RC
Nash Special 8	Ste	No	K-S	Her	AC	USL	K-S	No	§LOF	No	SW-1	—	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	Yes	Del-RC
Nash Advanced 8	Ste	Borg	K-S	DR	AC	Ex	K-S	Cas	§LOF	No	SW-1	—	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	Yes	Del-RC
Nash Ambas. 8	Ste	Borg	K-S	DR	AC	Ex	K-S	Cas	§LOF	No	SW-1	—	DG	No	Yes	B	B	—	Yes	Yes	MW	¶	Yes	Del-RC
Oldsmobile F-32	AC	No	AC	BS	AC	DR	AC	Yes	§LOF	—	DR-2	—	BW	No	Yes	No	No	—	No	—	K-H	¶	—	Lov-RC
Oldsmobile L-32	AC	No	AC	BS	AC	DR	AC	Yes	§LOF	—	DR-2	—	BW	No	Yes	No	No	—	No	—	K-H	¶	—	Lov-RC
Packard Stand. 8	NE	Jag	K-S	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW	—	—	No	Yes	CV	CV	—	Yes	Yes	MW	Wi	Yes	Del-RC
Packard De Luxe 8	NE	Jag	K-S	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW	—	—	No	Yes	CV	CV	—	Yes	Yes	MW	Wi	Yes	Del-RC
Packard Light 8	NE	No	Yes	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW	—	—	Yes	Yes	—	—	—	Yes	Yes	MW	Wi	Yes	Del-RC
Packard Twin Six	Wal	Wal	Yes	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW	—	—	Yes	Yes	CSV	CSV	—	Yes	Yes	MW	Wi	Yes	Del-RC
Pierce-Arrow 54	NE	Borg	K-S	Her	Cha	Wil	K-S	Cas	Dup	No	DR-1	Yes	—	No	Yes	††	††	—	Yes	Yes	K-H	Wo	And	Del-RC
Pierce-Arrow 52	NE	Borg	K-S	Her	AC	Wil	K-S	Cas	Dup	No	DR-1	Yes	—	No	Yes	††	††	—	Yes	Yes	K-H	Wo	And	Del-RC
Pierce-Arrow 53	NE	Borg	K-S	Her	AC	Wil	K-S	Cas	Dup	No	DR-1	Yes	—	No	Yes	††	††	—	Yes	Yes	K-H	Wo	And	Del-RC
Plymouth	NE	$	Yes	Sha	AC	Wil	—	$	§Dup	—	—	Yes	Own	Yes	No	—	—	—	Yes	—	K-H	Wi	—	Del-RC
Pontiac 6	AC	No	AC	DR	AC	DR	AC	No	§LOF	—	— 1	Yes	BW	No	Yes	—	—	—	No	—	K-H	Wi	Yes	Lov-RC
Pontiac V-8	AC	No	AC	DR	AC	DR	AC	No	§LOF	—	— 2	Yes	BW	No	Yes	—	—	—	No	—	K-H	Wi	Yes	Lov-RC
Reo "S"	Ste	No	K-S	DR	Cha	Wil	AC	No	No	No	— 1	Yes	—	Yes	Yes	§§	§§	—	Yes	No	M-W	Wi	$	Del
Reo Royale Cust.	Ste	Elgin	K-S	DR	Cha	Wil	AC	Cas	$	No	—	—	—	No	SHG	—	—	—	Yes	—	—	—	—	Del
Reo Royale	Ste	No	K-S	DR	Cha	Wil	AC	Yes	—	No	—	—	—	No	SHG	—	—	—	Yes	—	—	—	And	Del
Reo 825	Ste	—	K-S	DR	Cha	Wil	AC	Yes	$	No	— 1	—	—	No	SHG	—	—	—	Yes	—	M-W	Wi	And	Del
Rockne 6-65	Ste	No	K-S	Aut	Cha	Wil	K-S	—	§Lof	No	SW-1	Yes	BW	No	Yes	—	—	—	Yes	—	K-H	Wi	And	Del
Rockne 6-75	AC	No	K-S	Aut	Cha	Wil	K-S	—	§Lof	No	SW-1	Yes	BW	No	Yes	—	—	—	Yes	—	K-H	Wi	And	Hou
Studebaker 6-55	Ste	No	AC	DR	Cha	Wil	Ste	No	†	No	SW-1	Yes	BW	No	Yes	Yes	Yes	—	Yes	Yes	K-H	Wi	And	Hou
Studebaker Dic. 62	Ste	No	AC	DR	Cha	Wil	Ste	No	†	No	SW-1	Yes	BW	No	Yes	Yes	B	—	Yes	Yes	K-H	Wi	And	Hou
Studebak'r Com.71	Ste	No	AC	DR	Cha	Wil	Ste	No	†	No	SW-1	Yes	BW	No	Yes	B	B	—	Yes	Yes	K-H	Wi	And	Hou-RC
Studebak'r Pres.91	Ste	Borg	AC	DR	Cha	Wil	Ste	Cas	†	No	SW-1	Yes	BW	No	Yes	B	B	—	Yes	Yes	K-H	Wi	And	Hou-RC
Stutz L AA	Ste	Wal	Mot-M	DR	Cha	Nat	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	—	—	—	No	Yes	M-W	Wi	—	Gab
Stutz MA	Ste	Wal	Mot-M	Her	Cha	Nat	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	Co	—	Sp	No	Yes	K-H	Wi	—	Gab
Stutz MB	Ste	Wal	Mot-M	Her	Cha	Nat	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	Co	—	—	No	Yes	K-H	Wi	—	Gab
Stutz DV 32	Ste	Wal	Mot-M	Her	Cha	Nat	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	Co	—	—	No	Yes	K-H	Wi	—	Gab
Willys-Ov. 6-90 A	NE	No	Yes	Aut	Cha	USL	Yes	S-R	§LOF	No	—	Yes	Own	No	Yes	—	—	S-R	No	—	K-H	Wi	—	Mon-R-C-C
Willys-Ov. 8-88 A	NE	No	Yes	Aut	Cha	USL	Yes	C	§LOF	No	— 2	Yes	Own	No	Yes	—	—	S-R	No	—	K-H	Wi	—	Mon-R-C-C
Willys-Knig't 66 E	NE	Wal	Yes	Aut	Cha	USL	Yes	Yes	LOF	No	— 2	Yes	Own	No	Yes	Sp	—	—	No	—	K-H	Wi	—	Mon-R-C-C

KEY TO ABBREVIATIONS

AC—A. C. Spark Plug Company, Flint, Mich.
And—Anderson Mfg. Company, Cambridge, Mass.
Aut—Electric Auto-Lite Co., Toledo, O.
B—Brougham.
BS—Briggs-Stratton Co., Milwaukee, Wis.
BW—Borg Warner Corp.
Borg—Geo. W. Borg Corp.
C—Custom Models.
CCC—Convertible Custom Coupe.
Co—Coupe.
CS—Convertible Sedan.
CSV—Convertible Sedan and Victoria
CV—Convertible Victoria.
CAS—Casco Products Corp., Bridgeport, Conn.
Cha—Champion Spark Plug Co., Toledo, O.
DG—Detroit Gear and Machine Co., Detroit, Mich.
DR—Delco Remy Corp., Anderson, Ind.
Day—Dayton Wire Wheel Corp.
Del—Delco Products Corp., Dayton, Ohio.
DUP—Duplate Corp., Pittsburg, Pa.
EA—E. A. Laboratories, Brooklyn, N. Y.
Ele—Mitchell Specialty Co., Holmesburg, Pa.
Elgin—Elgin Watch Co., Elgin, Ill.
Ex—Electric Storage Battery Co., Philadelphia, Pa.
Gab—Gabriel Company, Cleveland, O.
Her—Hershey Mfg. Co., Chicago, Ill.
Hou—Houde Engineering Corp., Buffalo, N. Y.
Hurd—Hurd Lock Co., Almont, Mich.
Jag—Jaeger Watch Company, N. Y. City.
KH—Kelsey Hayes Wheel Corp.
K-S—King Seeley Corp., Ann Arbor, Mich.
LGS—LGS Corp.
LOF—Libbey-Owens-Ford Glass Company, Toledo, O.
Mon—Monroe Auto Equipment Mfg. Co., Monroe, Mich.
Mot-M—Moto Meter Gauge and Equipment Corp., L. I. City, N. Y.
MW—Motor Wheel Corp., Lansing, Mich.
NE—North East Appliance Corp., Rochester, N. Y.
Nat—National Lead Battery Co., St. Paul, Minn.
Oak—Oakes Products Corp., Chicago, Ill.
P—Phaeton.
Pre—Prest-O-Lite Company, Indianapolis, Ind.
RC—Ride Control.
S—Sedan
Sch—Schwarze Electric Co., Adrian, Mich.
SHG—Synchronized Herringbone Gear.
Sp—Speedsters.
SR—Sport Roadster.
SU—Suburban.
SW—Sparks Withington Co., Jackson, Mich.
Sha—Shaler Lock Co., Milwaukee, Wis.
Ste—Stewart Warner Speedometer Corp., Chicago, Ill.
Ster—Sterling Clock Co., La Salle, Ill.
TS—Town Sedan.
Thom—Seth Thomas Clock Co., N. Y. City.
USL—USL Battery Corp., Niagara Falls, N. Y.
WG—Warner Gear Co., Muncie, Ind.
Wal—Waltham Watch Co., Waltham, Mass.
Wi—Wire
Wil—Willard Storage Battery Co., Cleveland, O.
Wo—Wood
Yale—Yale and Towne Mfg. Co., Stamford, Conn.
*Various makes.
**Motor Wheel Corp., wood wheels; Dayton Wire Wheels optional.
***Using USL and DR batteries.
†Using LOF and Duplate Safety Glass.
††Club Brougham, Club Sedan, Club Berline and Convertible Sedans.
§Optional.
§§Sport Sedan, Sport Coupe and Sport Convertible Coupe.
¶Extra equipment at additional cost.
‖Wood or wire wheels optional.
*, Phaeton, Roadster and Business Roadster. Seven Sedan, Limousine, Pirate Touring and Pirate Phaeton.

DODGE ADDS 78 NEW DEALERS IN MONTH OF JUNE

(Continued from Page 1)

Middlesboro, Ky., and Belspring Garage, Belspring, Va.

Chicago—Forman Auto Sales, Chicago, Ill.; Ole Andrews, Cavalier, N. D.; Anderson Bros., Argyle, Minn.; J. W. Berkheimer, Niagara, N. D.; Luxemburg Implement Co., Luxemburg, Wis.; Dishmakes Bros. Co., Kewanue, Wis.; Matson Motor Co., Stoughton, Wis.; H. F. Andrews, Cuba City, Wis.; Augustine Motors, Oconto, Wis.; Chyle Garage, Protivin, Ia.; Newton & Son, Trail, Minn.; Langdon Motor Co., Langdon, N. D.; E. A. Poe, McHenry, Ill., and Weigand Sales Co., Chippewa Falls, Wis.

Detroit—Clifford Jacobs Motor Co., Cincinnati, O.; Allum & McClenaham, Sharon, Pa.; E. H. Sharke, Greenville, Mich.; Weavers Service Garage, Cedar Springs, Mich.; White Bros., Van Wert, O.; Rogers Motor Co., New Castle, Pa.; Ontario St. Motor Sales, Buffalo, N. Y.; C. J. Huff Motors, Franklin, Pa.; Miller Motor Co., Inc., Hinton, W. Va.; Fosnaught Motor Sales, E. Palestine, O.; Cordrey & Yager, Moscow, O.; A. Westin & Co., Newberry, Mich.; Major Auto Co., Standish, Mich.; Geo. E. Clarke, Avon, N. Y.; Walter Long, Carthage, O., and Lee G. Osborn, Millington, Mich.

Kansas City—Ray O. Brownell, Defiance, Ia.; A. A. Compton, Blair, Neb.; Bostian Motors, Independence, Mo., and D. A. Sturgiss, Cassville, Mo.

New York—Frame Motor Co., Mineola, N. Y.; Cleveland Sales and Service Co., Millburn, N. J.; Baird Motors, Sanitaria Springs, N. Y.; Victor Minotty, Franklinville, N. J.; Quality Service Garage, Clinton, Mass.; M. W. Devereaux, Colebrook, N. H.; Whitefield Cash Garage, Whitefield, N. H.; Scotia Motor Sales Co., Scotia, N. Y.; Jones Motor Co., Springfield, Pa.; Allen F. Schmeltz Valley View, Pa.; Thompson & Shearer, Solona, Pa.; Lewis Motor Car Co., Steelton, Pa.; J. W. Kimball, Lancaster, N. H.; Tom's River Motor Co., Tom's River, N. J.; Keegan Henson Motor, Syracuse, N. Y.; DeLisser Motor, Inc., New York, N. Y.; P. A. Motor Co., Metuchen, N. Y.; R. E. Williams Co., Solvay, N. Y.; Attleboro Motor Sales, Attleboro, Mass.; F. G. Huston, Patten, Me., and Edwin A. Bertlotee, Upper Darby, Pa.

St. Louis—McDaniels Garage, Virginia, Ill.; Fries Garage, Grafton, Ill.; Raley & Grigsby, Ruston, La.; Gardner & Ball, Mattoon, Ill.; H. Bremer & Son, St. Louis, Mo.; Guy Maness, Henderson, Tenn., and H. Jay Rodgers, Waverly, Ill.

San Francisco—Feather River Garage, Portola, Cal.; Thisted Motor Co., Great Falls, Mont., and Neeley & Martin, Sanger, Cal.

ABRASIVE FIRMS MERGE

Worcester, Mass., July 13.—The Norton Company of this city, manufacturer of abrasives used in the automobile industry, has secured control of the Pike Manufacturing Company of Pike, N. H. The new unit will be incorporated as the Norton-Pike Company, with the main office in Worcester. Executive offices, however, will be continued in Pike, N. H.

NEW FACTORY BRANCH

Montclair, N. J., July 13.—General Motors Corporation has opened its new factory branch at 7 North Willow St., Montclair.

FUSION WELDING AS RELATED TO STEEL CASTINGS

(Continued from Page 5)

numerous plants and laboratories, to give a comprehensive idea of what is probably the most effective welding done today on steel castings. It seems unnecessary to supplement the foregoing information by figures obtained from a great many other tests made by the company with which the author is connected. In nearly every case, the test results in this paper indicate results from the employment of good equipment, competent operators and discrimination in the selection of current, gas pressures, etc., and welding rods in particular.

To convey a clear idea of differing results obtained by the use of rods of the many kinds on the market, there will be found below a tabulation resulting from tests made under the author's general direction, showing averages of results when welding cast steel of ordinary composition. For obvious reasons the identity of the rod manufacturers is not disclosed. The author's experience indicates that when welding with gas results as divergent as those found below are obtained, according to the nature of the rod employed.

AVERAGES FROM SOME TESTS IN ARC WELDING 0.28 PER CENT. CARBON CAST STEEL, WITH VARIOUS WELDING RODS

Bars Normalized and Drawn After Welding

Rod	Tensile Strength, Lb. Per Sq. In.	Yield Point, Lb. Per Sq. In.	Elongation in 2 In., %	Reduction of Area, %
No. 1	65,000	41,875	15.4	40.0
No. 2	66,810	41,375	15.4	33.2
No. 3	53,375	36,250	18.3	55.1
No. 4	52,250	39,420	10.4	22.8
No. 5	51,650	39,435	8.8	26.2
No. 6	44,785	32,165	7.3	19.7
No. 7	46,915	37,670	6.0	13.1

It seems to be demonstrated that the best straight arc welding can be done with specially coated rods. There are several varieties of these, produced by competitive concerns, which are capable of yielding good results. Generally, if not always, it is found desirable to employ reversed polarity when applying a coated rod. The poorest welds indicated in the preceding tabulation were made with bare welding rods.

At times information has been sought regarding the machine-ability of weld metal. Many Brinell readings were made at the Lebanon Steel Foundry to ascertain the average condition of hardness in the weld metal, in the zone immediately adjacent to the weld, and in the casting proper. The tests included readings without, and after, heat treatment; after welding by the oxy-acetylene, the atomic-hydrogen, and the arc methods. The arc welding tests included bare and coated rods.

Briefly summarizing, tests on cast steel with an average composition of 0.25 per cent. carbon, 0.75 per cent. manganese and 0.38 per cent. silicon showed the following average Brinell hardness readings:

Method of Welding	Average Brinell Hardness Numbers: Before Heat Treatment	After a Draw at 1275° F.	After a Normalizing Treatment Followed by a Draw
Arc	127	121	118
Oxy-acetylene	125	108	102
Atomic-hydrogen	155	137	110

GENERAL COMMENTS

To prevent occupying too much space with comments as to fractures, references to these have been omitted from the tabulations. It may be said generally that the fracture of a butt-welded piece of cast steel occasionally discloses small gas cavities and particles of slaggy matter. The extent to which porosity and non-metallic material are present in weld metal seems now to be largely dependent on the nature of the rod and the skill of the operator. With a careless workman using good rod material, or a careful workman using inferior rod material, gas cavities and non-metallic inclosures are apt to be found in varying degree, irrespective of the method employed for welding and irrespective of the correctness of voltages, ampereages, gas pressures and other factors important to maintain, according to the method utilized for producing fusion. The complete elimination of gas appears to be very difficult to attain.

It is gratifying to the users of welded material as well as to the makers of such material to realize that good welds are capable of being made by the arc method, by the oxy-acetylene method, and by the atomic-hydrogen method. This fact is indicated by the figures quoted in this paper.

The principal purpose in presenting the foregoing test data has been to show the extent to which serviceable welds may be made with available facilities. The tension test values demonstrate the possibilities when employing what are believed to be modern equipment and proper procedure, including the important factor of the human element, for it is highly essential that the operator be properly directed and conscientiously inclined. The results given are not claimed by the author to represent average practice. He is in no position to ascertain and comprehensively to evaluate the results of typical practice in all plants welding steel castings.

Examination of the data might, without further explanation, convey the idea that steel foundrymen are concerned only with the values of welds obtained in tension testing. This is not the case. Foundrymen are greatly interested in the growing technical literature regarding fatigue, shock, corrosion and other comparative tests of unwelded and welded steels, which naturally have been made mostly on wrought steels and have resulted in instructive information that is being applied in the best engineering practice. Thus, a considerable amount of data is now available as a guide for estimating resistance to shocks and to fatigue in properly welded portions of fabricated structures. For the purpose of the present discussion it is regrettable that there have not been published or reported to the author sufficient data regarding impact, fatigue, and certain other tests on welded cast steel, to make feasible the inclusion of such figures in this paper. It is hoped that conclusive information relating to other than tension tests, made on welded steel castings, may be available soon for the information of engineers.

It is proper here to point out that there is an increasing dependence on the bend test for determining the ductility of welded joints. In this test, after bending, the extension of the deposited metal is measured, and the percentage of this elongation is recorded. This may ultimately prove to be the most satisfactory method of ascertaining the extent to which welded metal will stretch, this being a recognized indication of ductility. At the present time, on account of the almost universal dependence on the tension test, the latter must be relied upon as the most satisfactory basis for comparison of data reported from different laboratories. The bend test, obviously, has the distinct advantage of application in many shops where no tension testing machines are available.

Some experiments were made under the author's direction, in determining the elongation by means of the bend test method. Butt welds of cast steel showed in some cases an elongation amounting to 45 per cent. It is not proper to compare this value with the percentage of elongation as determined by the tension test. The figures are not comparable with each other.

(To Be Continued)

AUTOMOTIVE FUELS, LUBRICANTS

(Continued from Page 4)

lock has become an important factor for the reason that there has been a large supply of the lighter ends of gasoline known as casing head gasoline, which is mixed with the refinery gasolines to lower the 10 per cent. point to give easy starting. Since a gasoline must be made to give easy starting, co-operation on the part of the automobile manufacturer is necessary. The automobile manufacturer must design the fuel system so that the temperature surrounding the fuel lines shall not cause the temperature of the liquid to exceed the 10 per cent. point. A liberal allowance must also be made in the temperature if propane or butane in material amounts are dissolved in the gasoline. Ninety per cent. of the 1931 cars were not satisfactory on this point.

Acceleration is closely related to starting. We consider starting as the phase involving the first explosion in the cylinders and acceleration as the phase in keeping the engine running after the first explosion has taken place. The accelerating characteristics depend upon the temperature range falling between the 30 and 60 per cent. points. The government specifications require that the 50 per cent. point shall not exceed 275° F. (not corrected for loss). It is assumed that if the 50 per cent. point is satisfactory, the 30 and 60 per cent. points will also be satisfactory.

The 90 per cent. point is used as a means of regulating the oil dilution in the crankcase so that it may not become excessive. It is known that gasoline does not have to become completely vaporized in order to give satisfactory combustion characteristics—in fact, more power is obtained and less detonation results if a large part (about 65 per cent.) of the gasoline is vaporized and the rest atomized. This shows the fallacy in the idea that "dry gasoline" gives more power and better performance. However, if most of the gasoline is atomized instead of being vaporized a large percentage of the gasoline will tend to pass into the crankcase and cause excessive oil dilution. The government specifications require that the 90 per cent. point (not corrected for loss) shall not exceed 392° F. This prevents too much of the fuel being unatomized.

The properties of a gasoline depending on certain points on the A. S. T. M. distillation curve have been briefly mentioned, and it is logical that we should in some way evaluate these properties. Since the climate here in Oregon is mild practically the whole year it is important that we have a gasoline with a medium 10 per cent. point so that the gasoline will give us good starting characteristics and yet not cause vapor lock. This is proven by the fact that the average 10 per cent. point of the major, coast, non-premium gasolines tested was 136° F. Looking again at slide No. 1 it is seen that gasoline No. 3 had a 10 per cent. point at 127° F. and gasoline No. 1 had 10 per cent. at 142 F. According to Dr. G. G. Brown of the University of Michigan this means that gasoline No. 1 will start at a minimum of 6° F. and gasoline No. 3 will start at a minimum of 16 F. with four revolutions of the motor. These samples were obtained January 7, 1932, and during that particular week the temperature dropped to 24° F. This shows that both gasolines would give satisfactory starting characteristics. In some parts of the country where the climatic conditions become severe, the starting characteristics of a gasoline would be of paramount importance, because the oil in the crankcase would be very viscous and the starter would be working under a heavy load. Under these conditions a fraction of a revolution of the starter might spell success or failure in starting the car.

The 50 per cent. point seems to be of no concern since practically all gasolines meet the requirements for good acceleration. It must be remembered that acceleration here means keeping the engine running after the first explosion has occurred.

It is certainly desirable to have a 90 per cent. point that will give us maximum power and yet not cause excessive oil dilution. If this point is too low with reference to 392° F. most of the gasoline will be vaporized, which will result in a decrease of power; on the other hand, if the temperature is in excess of 392° F. there is liable to be excessive oil dilution, which will greatly increase the oil consumption and possibly break the protecting oil films, thus causing metal to metal contact and excessive wear. All of the major, coast, non-premium gasolines meet the requirement for the 90 per cent point.

Under impurities come gum and sulfur. Gum formation takes into consideration actual and potential gum. The actual gum is considered as the gum actually present in the gasoline at a given time. This value may be obtained by evaporating a sample of gasoline in a porcelain dish over a steam bath under a blast of air. In this test the rapid evaporation of the gasoline so lowers the temperature that the chemical reactions, such as oxidation, do not take place, so that no additional gum will be formed through the method of procedure in the test.

The potential gum is the gum that will be formed in storage. This is of interest to the distributor rather than the consumer, since gasoline is only stored for short periods of time in the gasoline tank of an automobile. The copper dish method, where a certain amount of a gasoline is placed in a copper dish and allowed to evaporate gives a rough indication of the potential gum present, but it does not distinguish between actual and potential gum.

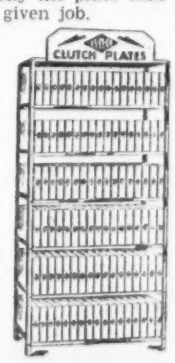
As yet the American Society for Testing Materials has not decided upon a standard test for determining the gum content present in gasoline. The Ethyl Gasoline Corporation refused to accept gasoline with an actual gum content of more than 10 mg./100 cc. and this is the standard now used over the country. Of the major, coast, non-premium, gasolines it was found that all but one had an actual gum content of less than 5 mg./100 cc., and that one had 7 mg./100 cc. In other words, the gasolines used here meet in this respect the requirements of the Ethyl Gasoline Corporation which demands high quality gasoline.

We often hear about acid free gasoline and all about acid being present in gasoline. In analyzing this problem it is evident that acid may occur in gasoline either as free acid, or potentially as sulfur which when burned forms sulfur dioxide (SO^2), which, in turn, may or may not combine with water to form sulfurous acid. There is some possibility of free acid being present in a gasoline since sulfuric acid is used in some refining processes. Out of the 158 samples of gasoline tested by the Bureau of Mines only one was found to have a trace of free acid. With these figures in mind one is almost safe in saying that gasoline contains no free acid.

(To Be Continued)

REPLACEMENT CLUTCH PLATE STAND

The Es-M-Co. is now offering a novel stand for stocking a complete line of replacement clutch plates, which are packed in labeled cartons. A system of numbering has been devised so that the stock man does not have to waste time in picking out exactly the plate that is needed for any given job.



The Es-M-Co. is also announcing an obsolescence guarantee to protect jobbers against slow moving or obsolete stock. The company also has a new catalogue ready for distribution.

"Fly—
In the Plane You Will Eventually Buy"

STINSON

FOUR-PASSENGER CABIN PLANES
$4,595 to $5,595
F. O. F., WAYNE, MICH.

AIR CAB SERVICE

A new transportation tool for Dealers and Distributors.

Travel by air on your next trip to the factory. It's good business to fly because it saves time. Air travel is economical. The Stinson plane will transport one, two or three passengers and pilot with baggage, comfortably, speedily and safely.

Distributors can also use Stinson Air Cab Service to call on their out-of-town dealers. A quick swing around the State via air will give you more time at home. Call the Stinson operator at your airport—let him help lay out the itinerary for your next trip.

COMBINE BUSINESS WITH PLEASURE

The Stinson operator will teach you to fly and navigate the plane while you use it for business trips—two services for the cost of one. Any normal person can fly the Stinson the first time a pilot takes him up.

For complete information on low cost flight instruction and air taxi travel call the Stinson Air Cab Operator in your city, or write the Secretary.

STINSON AIR CAB OPERATORS ASSN.
Wayne, Michigan

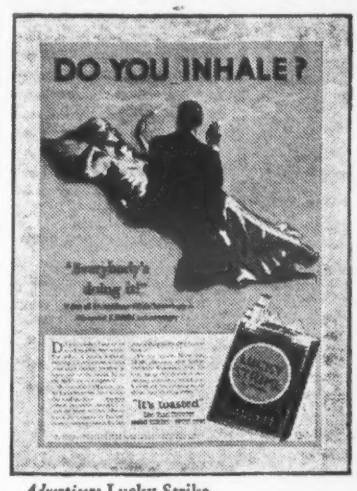
STINSON AIR CAB SERVICE

THIS EMBLEM is your protection. Be sure it is on the plane you hire for air taxi trips and flight instruction.

Advertiser: Eastman Kodak
Agency: J. Walter Thompson Co.
Space: Back Cover
Reader Interest: 65% better than average page

Advertiser: Frigidaire
Agency: Geyer Co.
Space: Back Cover
Reader Interest: 56% better than average page

Advertiser: Jantzen
Agency: Botsford, Constantine & Gardner
Space: Four Color Third Cover
Reader Interest: 62% better than average page



Advertiser: Lucky Strike
Agency: Lord & Thomas
Space: Back Cover
Reader Interest: 79% better than average page

40% of Liberty's page ads

as compared to 13% of those in 2nd weekly
7% of those in 3rd weekly

are among "best read ads" of past 9 weeks

—according to the "what did you read" check of 9 samples of 150 persons each, made to date, by Percival White, Incorporated

WEEK OF JULY 2

All page ads in Liberty stopped on average:

11% more persons than in second weekly

29% more persons than in third weekly

HERE, again, are the "best read ads of the week" as reported from this week's count of exactly what 150 "readers" of Liberty, Collier's and Saturday Evening Post *actually read*.

This is the ninth week of the Percival White, Incorporated, surveys. And for nine weeks, an average of 40 per cent of Liberty's page advertisements has appeared on the "best read" list.

The second weekly averaged 13 per cent of its page ads on the "best read" list.

The third weekly averaged 7 per cent of its page ads on the "best read" list.

Are these odds working for or against the effectiveness of *your* advertising?

Reader Interest Not Everything

These weekly surveys attempt to find out what—and how much—people read. Of course, people do not buy merely because they read. The persuasiveness of what they read determines that. (Which is the copy writer's job.) But they've *got to read* before they can be persuaded. So reader interest is a primary requirement. (Which is the magazine's job.) And when 40 per cent of the ads in one magazine find a maximum audience—compared to 13 per cent in another magazine and 7 per cent in a third—then, we say that the odds for your advertisement in the first magazine reaching maximum effectiveness are rather overwhelming.

Think It Over

Many executives are watching these reader interest results every week. They note, week after week after week, how great a proportion of Liberty's ads are "best read" . . . how *all* advertisements in Liberty average 21% to 61% greater reader interest (which means 21% to 61% greater *real* circulation). Many of these executives are beginning to realize that theirs should be no mere thoughtful, scholarly, objective contemplation; that this is no cloistered delving into metaphysical abstractions; that here are *facts* about people who are living, reading, reacting, buying *now;* that these counts of 21% to 61% greater reader interest mean that 21% to 61% more prospects may be seeing *Somebody's* advertising this week, without that Somebody spending a penny more, merely because that Somebody recognizes changing times, changing magazine tastes and has courage enough to sacrifice tradition to conviction.

The facts exist, whether they remain only an object of the student's regard or are turned to the pragmatist's profit. They have existed for the past 9 weeks. They exist this week. They will probably continue to exist next week and the week after.

When they will begin to exist for *you* is entirely up to you.

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Watch in next Thursday's issue for "Best Read Ads" of July 9

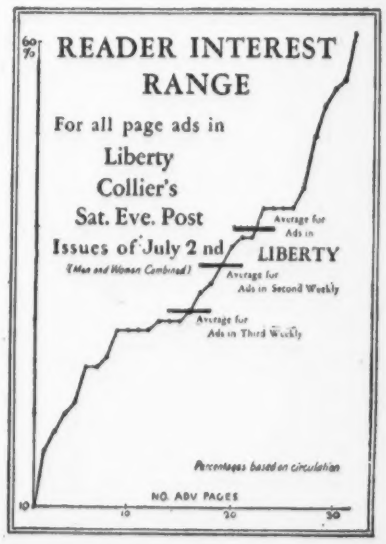
Liberty . . . *America's* BEST READ *Weekly*

Advertiser: Westclox
Agency: Batten, Barton, Durstine & Osborn
Space: Black and White Page
Reader Interest: 47% better than average page

Who reads the Big Weeklies?

THE Percival White, Incorporated, investigators call at random, all over town, good neighborhoods, middling, poor. Wherever they find any of the three big weeklies they interview the reader. Here is where they have found them during the White Surveys to date:

	Per Cent of Interviews by Income Class of Readers (9 Week Total)			
	A	*B*	*C*	*D*
Liberty	2%	40%	54%	4%
Second Weekly	2%	41%	54%	3%
Third Weekly	4%	42%	51%	3%



BEST READ ADS OF THE WEEK

JULY 2